SPECIFICATION AMENDMENTS

Sir:

Please amend the Brief Description of the Drawings on page six and seven, amend the Detailed Description beginning with the second paragraph on page seven and ending with the third paragraph on page eight, and add an abstract presented on a separate sheet as follows:

Brief Description of the Drawings

Fig. 1 is a perspective view of the mobile grinding assembly portion of the present invention;

Fig. 2 is a diagram showing the enzymatic digest mixing assembly portion of the present invention;

Fig. 3 is a side view of the mobile grinding assembly portion of the present invention;

Fig. 4 is an enlarged plan view of the mobile grinding assembly of Fig. 3;

Fig 4a is an enlarged cross-sectional view of the grinder of the grinding assembly of Fig. 4;

Fig. 5 is a side view of the digesting and emulsifying assembly portion of the present invention;

Fig. 6 is a block diagram showing the components of the dough mixing apparatus and extruder of the drying system portion of the present invention;

Fig. 7 is a block diagram of the drying apparatus of the drying system portion of the present invention;

Fig. 8 is a flow diagram showing the components of the apparatus for natural recycling of protein waste of the present ~~invention; and~~ invention.

~~Fig. 9 is a flow chart showing the steps for the process for natural recycling of protein waste of the present invention.~~

Detailed Description

In general, the process is shown in ~~the flow chart depicted in Fig. 9~~ Fig. 2 and Fig. 8 and requires that an enzymatic digest medium 18 of a particular pH level be prepared and stored until such time as it is needed. The medium of the preferred embodiment comprises enzymes 204, inedible egg 206, a preservative 208 and water. The enzymes 204 may include protease to break down and digest most proteins, and keritinase to aid in digestion of feathers and the preferred embodiment contemplates a mixture of preservative 2 lbs/ton, enzyme 1 1/2 lbs/ton, and the remainder per ton of inedible egg . The preservative 208 restricts multiplication of bacteria or microorganisms which could adversely affect the end product. An example of one such preservative 208 is sodium meta-bisulfite. Although inedible egg is a logical choice when the apparatus is used in conjunction with poultry production, other fluid wastes such as outdated ice cream, molasses, milk by products, and others that include proteins, fat, and water could be appropriately substituted.

In the preferred embodiment, the pH is adjusted by measured addition of phosphoric acid 36 to maintain an optimal level of pH 5 or within the range of about 4-6. Using phosphoric acid 36 to effect a change in pH also adds phosphorous to the medium and, in turn, provides a high phosphorous product which may enhance the desirability of the additive for animal feed. Other acidic solutions may also be used. For example, lactic acid is one such reasonable alternative. In the case where lactic acid is used, the fermentation process which occurs as a natural consequence of the use of lactic acid, (in addition to digestion by enzymes) also acts to break down the protein waste and lowers the pH at the same time.

Protein waste [[41]] in the form of spent hens 216 is then ground and the enzymatic digest medium 18 and ground protein waste 41 are thoroughly mixed and re-circulated through a chopper pump 88 to produce a protein solubles mixture 84. The protein solubles mixture 84 is maintained at or heated to a temperature optimal for enzyme digestive action which ranges between about 90 degrees Fahrenheit and 110 degrees Fahrenheit and recirculated periodically until the mixture is mostly liquid. The heat created by the exothermic digestive process and the friction of recirculation in certain conditions may be enough to maintain the optimal temperature and, if not, additional heat can be provided. The preferred method suggests recirculating the mixture for 1 hour every 12 hours for 3 -4 days, however, the speed of the process may be increased if additional enzyme is used. When the protein solubles mixture 84 can be strained and the number of quills remaining in the strainer is acceptable, the digestion is complete. The protein solubles mixture 84 is then emulsified to disperse fats and proteins and allowed to separate. The resulting water layer 114 is drained off and recycled to be re-used for mixing enzymatic digest medium 18 and, after draining the water layer 114 several times, the emulsified proteins 110 is mixed with a carrier 132.

DRAWING AMENDMENTS

Sir:

Please amend drawing Fig. 8. References numbers have been added to the flow chart, and the emulsify 106 and saponify 108 steps have been added. A Replacement Sheet for sheet 9 has been attached.